

Management of Small Docks and Piers

Legal Authorities and Management Techniques

Introduction—

Understanding individual and cumulative impacts of small docks and piers is only the first step in the management process. Based on the understanding of impacts, decisions need to be made as to which are acceptable and which should not be allowed. Finally, there must be a system in place to ensure that unacceptable impacts are avoided. This latter aspect of the management process will be discussed here.

Two general techniques are available for managing impacts: regulatory techniques such as permitting reviews, zoning, building codes; or non-regulatory methods such as land acquisition and construction of public facilities, public education, and planning efforts.

Management through Regulatory Techniques—

The **Police Powers** of government were established to protect public health, welfare, safety and morals and they may be applied at the federal, state, or municipal level (including counties, parishes, cities, and towns). Police powers are typically utilized as a basis for environmental regulation and, as such, all decisions must be limited to the interests of public health, welfare, safety and morals.

The regulatory abilities of municipalities generally fall into one of two categories. In some states, all municipal powers have to be specifically authorized by the State constitution and legislature. Municipalities that fall into this category can only exercise those powers that have been expressly delegated and/or implied by the State. These are often referred to as "Dillon's Rule" states—named after 19th Century Judge Dillon of Iowa. Here, if the State does not say that the municipalities can regulate, then they cannot regulate.

Other States, however, give general grants of authority through their constitutions that allow municipalities to exercise those decisions necessary to govern their communities. Within these states, typically referred to as "Home Rule" states, municipalities can adopt charters (akin to a "Constitution") that form the foundation of the municipal government and its regulatory powers. Here, unless the State says municipalities cannot regulate, then they can.

Ownership rights—or property rights such as easements—of a state or local jurisdiction provide additional management opportunities. Public lands may include, for example, parkland, roadways, or boat ramps. Germane to the discussion regarding docks is the fact that land below the tide line generally is owned by the state or, in limited instances by a municipality. In these situations, the proprietary interests in the property provide a far broader basis for authority than do the police powers. In this situation, the state has the authority to issue—or deny—leases or licenses for private structures on public lands based on a wide range of state purposes.

The **Public Trust Doctrine** holds that citizens have certain fundamental rights and interests in natural resources such as the sea, the shore, and the air; and that the State, as trustee of the public interest, has a duty to preserve and enhance both the natural resources and the public right to use them. This forms the basis for most regulatory programs pertaining to navigation and public access.

In the case of private docks, it is not uncommon for multiple regulatory authorities to apply. Police powers may provide the state and/or local government with regulatory authority over environmental or visual impacts. The federal government, through the U.S. Army Corps of Engineers, may have authority over potential impacts to navigation. Lastly, the state or municipal government may have authority over the use of submerged lands and public access or shoreline use rights.

Regulatory Management at the State Level—

All states have an environmental review process and/or licensing program for docks. Therefore, the issue is not creation of a regulatory mechanism, rather a clarification of the impacts and development of adequate resource protection standards. Impacts are discussed in detail in previous sections of this workbook.

Regulatory Management at the Local Level

As mentioned previously, management capabilities at the local level depend on whether a municipality is within a “Dillon’s Rule” or “Home Rule” state. Several management options, however, are available in all states.

1. Zoning

All states provide the option of some form of zoning administered at the local level. The principal benefit of zoning ordinances is to allow for geographic segregation of conflicting activities. Zoning allows local jurisdictions to set standards for structures or activities including dimensions, appearance, or natural resource protection. These may be applied community-wide or in specific areas referred to as Overlay Districts. They may define uses or actions that are permitted without review, those permissible with a favorable review, and those prohibited altogether. Most zoning provides for variances for just cause.

A recent variation on zoning—and one relatively untested by the courts—is to zone the surface waters (or watersheet) within a community. This is being explored on Cape Cod, MA through the regional planning agency, the Cape Cod Commission. Although the submerged ocean land may be “owned” by the state, if it falls within the boundaries of the community it may be subject to their zoning process and standards. This could provide a very valuable tool for dock management.

Case Study, Lloyd Harbor, NY—

A recent case in New York illustrates the use of a shoreline Overlay Zoning District for dock management. The Village of Lloyd Harbor established a Coastal Overlay District with standards designed to manage land and water uses within the harbor and specifically to protect the:

1. significant natural resources of the area,
2. relatively undeveloped open space and uses along and in the harbor, and
3. scenic and visual qualities—essentially the community character of the waterfront.

Within the Overlay District, dock length was limited to 75 feet from the mean high water mark, or to a depth no greater than two feet mean low water at the seaward end of the dock, whichever produced the shortest dock. This was done as a way to reduce encroachments into the navigable channel, and minimize the effects of the docks' physical presence on the character of the area.

An owner of upland property abutting Lloyd Harbor desired to construct a longer dock than the Overlay District allowed and challenged the ordinance in court. The appellants claimed that the ordinance dampened “their legal and constitutional rights to own and use their property and its riparian rights” under the Fifth Amendment of the US Constitution and resulted in a “taking of their property for public use without just compensation.” In making this claim, the plaintiffs asserted that the ordinances were “unconstitutional, illegal, and invalid” and did “not promote the health, safety, welfare or morals of the general public; [were] not enacted in furtherance of a comprehensive land use plan; are not rationally related to achieving a permissible municipal goal; and are arbitrary and capricious.”

The case (*Stuchin v. Town of Huntington and Village of Lloyd Harbor*) was tried in US District Court in the Eastern District of New York. In September of 1999, the judge handed down a 68-page decision (71 F. Supp 2d 76, No.CV 98-3580 (ADS)) finding that the property owners had not been denied their right to access the waterway adjacent to their property, but merely had their “mode of access ... limited to a dinghy launched from the foreshore of their property.” He went on to note that both the right of access and construction of a private dock are “subject to general rules and regulations as the Legislature may see proper to impose for the protection of the rights of the public, whatever these may be.” In short, the Court ruled that the Overlay District was legally valid and did not violate the property owner’s constitutional rights. The Court upheld the denial of the permit for the proposed dock.

In making this decision, the judge found there was a “substantial rational basis for reducing the size of docks in these waters including the Village’s ... concerns regarding 1) obstruction to navigation, 2) preservation of the pristine natural habitat and precious resources of Lloyd Harbor and 3) aesthetics.” The judge dismissed the regulatory taking claim and concluded that the village standards “pass constitutional muster.”

The Court concluded that the Village Lloyd Harbor did not act in an “arbitrary or irrational manner” in establishing the Overlay District standards related to dock design, noting that “[g]enerally a municipal zoning ordinance is presumed to be valid and will not be held unconstitutional if its wisdom is at least fairly debatable and it bears a rational relationship to a permissible state objective.” Citing *RRI Realty Corp v. Village of Southampton, NY* (2d Cir, 1989) “zoning regulations will survive substantive due process challenge unless they are ‘clearly arbitrary and unreasonable, having no substantial relation to the public health, safety, morals, or general welfare’.” Accordingly the Court found that the zoning ordinances bore a “rational relationship to a legitimate government objective.”

Case Study, Blakely Harbor, Bainbridge Island WA—

As part of a harbor planning exercise on Bainbridge Island, WA, planners assessed the potential for visual impacts from dock construction (Best, 2002). A GIS model was created showing existing structures and the potential for a full build-out of docks. There are three existing small piers in this generally shallow embayment, but there is the potential for more than 50. Using these two scenarios, the narrowing of views (i.e., views unobstructed by the presence of docks) was calculated from “select public vistas” such as parks and scenic roadways along the harbor as well as views of the land from the water side. Assessments were not done for visual impacts on views from private properties. Analysis showed that the view corridors from the public land sites would be narrowed between 27–58 percent for projects that had already been proposed and up to 78 percent at maximum build-out. Additional assessments were made for impacts to navigation and to natural resources.

Following the planning exercise, the City Council amended the City’s Shoreline Management Master Program to limit future construction of docks within the harbor. The amendment (Ordinance 2003-30, www.ci.bainbridge-isl.wa.us/blakely2_rev.asp) limits the number of new docks to one small day-use public pier and two small (five or fewer boats) community docks—one on the north shore and one on the south—for the private use of harborside residents. The plan was appealed but ultimately was adopted by the Washington State Department of Ecology into the State’s Coastal Management Program.

Case Study, Ashley River (SC) Special Area Management Plan—

States also have the potential to develop Special Area Management Plans (SAMP). One such plan was developed for the Ashley River in South Carolina. The State’s Coastal Council approved the SAMP in 1992. It established standards for dock size, design, and use. One of the provisions of the SAMP is a prohibition against widening walkways to pierheads and floats. A riparian property owner challenged this provision seeking to widen the walkway for storage of a kayak and a rowing shell. The State of South Carolina Administrative Law Judge found against the property owner noting, among other findings, that the petitioner failed to demonstrate that there were not other reasonable alternatives for storing his boats than on the walkway, and that denying the request “limits the long range cumulative effect that will lead to other possible development that may impact the general character of the area” (State of South Carolina, 1996)

2. Subdivision Control Ordinances

Subdivision ordinances and regulations fine-tune zoning. Utilizing this mechanism, local boards have the authority to review and condition the division of land into new parcels. Typically this process is used to define new lot boundaries and ensure sufficient infrastructure and roadways to support the increased population of homes and people. However, subdivision controls can also be used to establish or codify covenants over the new lots. For waterfront areas this could provide a mechanism to limit numbers and/or sizes of docks by mandating communal docks or even a single community dock or landing. The reviewing body often has the opportunity to require certain benefits designed to mitigate impacts from the new subdivision development.

3. *Building Codes*

In some states, local jurisdictions have the authority to establish building codes in addition to any state standards. These can apply to any structure, including docks and piers, where its enforcement protects the public health, welfare, and safety elements of the police powers. This allows local ordinances to define dock size, materials, and means of construction.

4. *Local Environmental Ordinances*

In Home Rule states, municipalities may have the capability to establish local ordinances to protect and/or manage wetlands and related resources. In Dillon's Rule states, this authority must be clearly transferred to municipalities. Local environmental ordinances can be used to strengthen state programs by adding additional interests (e.g., recreation or aesthetics) to be protected or strengthening standards to protect resources.

5. *Harbormaster and Dock Commissioner Management*

Harbormasters or Dock Commissioners generally control municipal docks, wharves, landings, and the like within a waterbody. In most communities, the harbormaster also controls moorings, floats, and other non-permanent structures in the water. This authority may provide some dock management capabilities regarding such controlling dock length (to preclude interference with mooring or anchoring areas) or height and pile spacing (to allow passage "through" the pier by small vessels or to avoid obscuring navigational sight lines). Some docks consist of a bottom-anchored float with a temporary walkway to shore. If these are not fixed structures, the harbormaster may have the sole management authority.

Many communities additionally have Harbor Management Commissions or Committees charged with developing a master plan for the use of the harbor. Depending on the state or municipality, these master plans may include regulatory standards administered by the Commission or other agency.

Challenges to Regulatory Authorities and Management Mechanisms—

It is not uncommon for someone who feels aggrieved by decisions resulting from a regulatory program—at any level of government—to challenge either the decision itself or the legality of that program as a whole. Typical challenges include (based on McGregor, 2003):

1. *Exceeding Authority*

The challenge may allege that the technical and/or administrative aspects of a regulatory program exceed the authority provided by their statutory language or legislative intent. It is critical, in developing regulations for either state statutes or local ordinances, to be cognizant of the authority provided and to be able to justify all procedures or standards within the enabling legislation. (Additionally, while local ordinances and regulations can strengthen or complement state or federal law, municipal authorities cannot supersede state or federal authority by "weakening" or modifying standards established by those entities.)

2. *Violation of Legal Processes*

Regulatory violations in the implementation of existing laws may occur through substantive errors (e.g., making decisions not in accordance with enabling legislation), procedural errors (e.g., not providing appropriate public notice, opportunity for input, or charging inappropriate fees), or in not protecting public trust obligations. Regulatory entities must be careful to follow all regulatory procedures and make decisions within the authority of enabling authorities.

3. *Arbitrary or Capricious*

Challenges of ordinances, regulations or specific decisions as arbitrary or capricious may argue that such legal mechanisms do not have a rational relationship to a legitimate government objective such as public health, welfare, safety, or morals. Decisions under regulatory programs may be challenged if they are not based on substantive evidence or testimony.

4. *Unconstitutional Taking*

The Fifth Amendment of the U.S. Constitution requires that property cannot be taken from its owners without just compensation. Over the past two decades there have been several highly visible challenges to government environmental regulation suggesting that those regulations have so limited the use of property as to constitute a “taking” and render the private property deprived of all reasonable uses. The specifics of the legal arguments are beyond the scope of this document but excellent summaries may be found in Duerksen & Roddewig (1994) and McElfish *et al.* (1996).

In the case of docks, it is sometimes alleged that dock regulatory programs may deprive the owners of their riparian rights—the right to access waters adjacent to private property. Generally, the courts have found that riparian rights only require access to the waters but do not guarantee a dock or other structure to gain that access. Additionally, they have found that an environmental management program that protects reasonable public interests will not be considered a taking. This is based on the premise that private property may be regulated under police powers to protect the public health, welfare, and safety.

Non-regulatory Management Techniques—

There are various non-regulatory techniques for dock management that are available to states, municipalities, and in some instances, residents of waterfront areas. These include:

1. *Public Education Regarding Dock Impacts and Ways to Avoid Them*

Education can be a powerful tool. Ensuring that people are aware of the impacts of their actions is one of the foundations for both regulatory and non-regulatory programs. Ways to implement this effort can be workshops, mailings, demonstration projects, public service announcements, etc. These materials were developed as a mechanism to help with this process.

2. *Communal Docks*

Shared docks lessen the number of structures—as well as the impacts—within a waterbody. This sharing can come in a number of ways:

- Community or other publicly owned docks, wharves, or landings.
These generally require public funding for acquisition or maintenance. Fees can be charged or donations solicited from individuals, corporations, or “friends of” groups as a means of covering costs.
- Yacht Clubs and Marinas.
In this case, private groups and businesses establish communal facilities and allow them to be utilized at a cost to the user, through either dues or rental costs.
- Voluntary (or mandated) sharing between neighbors or members of a neighborhood association. These may be entirely voluntary so as to take advantage of favorable water depth or access, or be the result of exactions through regulatory programs. Whatever the driving interest, communal docks of this sort come at no financial expense to a community as a whole, although users typically pay for construction and maintenance.

NOAA’s Coastal Services Center web site provides three scenarios of how communal dock development might work (Coastal Services Center, 2005). In this exercise, they envisioned build-out of docks in a community under three different scenarios. These include: These include:

- The “Conventional” scenario where every waterfront property has a private dock,
- The “Conservation” scenario where there are no private docks. They are replaced by community docks and a public boat lift.
- The “New Urbanist” scenario includes community docks within each of three communities.

Specifics of dock sizes, types, and numbers are shown in Table 1 below.

	Conventional	Conservation	New Urbanist
Type of Docks	2 public docks in a marina. 4 community –use docks. 11 shared docks 86 single-family docks	1 public boat lift 3 community-use docks 0 shared docks 0 single-family docks	5 public docks, 2 in a marina 6 community-use docks 0 shared docks 0 single-family docks
Total Dock Length	43,721 feet	1,013 feet	2,086 feet
Total Area Covered by Docks	262, 326 square feet	6,078 square feet	12,518 square feet
Total Number of Docks in Each Scenario	103 docks	4 docks	7 docks

Table 1: Table showing differences between three possible dock development scenarios in a community. Coastal Services Center, 2005.

Mechanisms for Promoting Non-regulatory Methods—

Non-regulatory management techniques can be implemented in several ways including:

1. *Acquisition*

States or municipalities have the option to acquire land from willing sellers or donors, or through their powers of eminent domain. Land acquired in this way can be utilized for communal docks or ramps. A project of this type generally requires funding for acquisition and construction, obtaining a permit and/or license for construction, and maintenance costs.

2. *Incentives/Disincentives*

States or municipalities may also provide incentives or disincentives for communal or private dock construction. Many of these techniques are untried or in very early stages of discussion. Some of the techniques include:

- **Funding or tax incentives/disincentives**

Funding and/or technical assistance can be provided to neighborhood groups or other entities to design, acquire permits, and construct communal docks, marinas, or yacht clubs that will lessen the need for private docks.

Many communities increase property taxes if a dock is present on the lot. If this increase is significant, property owners may investigate communal dock options.

Lessening or even waiving property taxes on communal docks, even when they are located on private property, may also act as an incentive.

- Permitting incentives/disincentives

The permitting process can be a significant disincentive due to costs and time required to complete that process. "Permits by Rule", *e.g.*, *a priori* permission for construction if docks meet established criteria, can speed the process. A standardized design and permit by rule option for communal docks can encourage their installation rather than private structures.

- Social pressure for not constructing private docks

If there is a general agreement among people living on a water body to avoid private docks and/or develop and use communal docks, social pressure may have the effect of limiting individual structures. An example of this took place on Martha's Vineyard where property owners fronting on Vineyard Sound agreed among themselves not to construct docks. When a dock was eventually proposed for one lot, the neighbors spoke with the property owner who "graciously withdrew" her request for a permit.

Regional Planning for Dock Management—

Most proposals for small docks are reviewed on a case-by-case basis. This precludes an effective review of cumulative impacts. Moreover, when taken individually, most docks have very minimal impacts and therefore are often difficult to deny.

A more successful approach appears to be regional planning and management. Typically, there are five steps in this approach.

1. Establish well-defined boundaries, clearly explaining the reasons they were selected.
2. Develop public agreement as to the resources to be protected, based on community values
3. Define the impacts of individual docks or a full build-out of potential docks, and
4. Create a method to implement the plan once it has been completed
5. Establish a mechanism for periodic review and update.

In order to manage the number of small docks, planners may consider the following techniques:

- Identifying areas where no further dock development should occur and areas where managed growth is permitted.
- Encouraging community docks.
- Promoting marinas as an alternative to individual docks.
- Regulating groups of docks in a limited area using conditions similar to those for marinas.

The framework for such a special area planning effort can be one of a number of options including:

1. *Zoning Overlay Districts*

Zoning Overlay Districts were described previously in the section on Regulatory Management at the Local Level as a means of implementing community-based standards.

2. *Harbor Management Areas*

Many states have a formal harbor planning process, either as part of an environmental regulatory program, a public trust management program, or through a community planning mechanism.

In most harbor plans, the central issue is to resolve potential conflicting human uses within a specific geographic area, whether resource-based (e.g., shellfishing), recreation-based (e.g., swimming, boating, water-skiing), commercially-based wharfs and associated uses, or residential-based uses such as private docks.

3. *Coastal Zone Management Special Area Management Plans*

State coastal zone management programs include the capability to establish, or assist in the establishment of, special area management plans. These may be administered at either local or state levels to preserve or restore natural resources or manage activities that might have adverse impacts on such natural resources.

Many state coastal management programs enable municipalities to develop local coastal management plans that are adopted as part of the state program. Under this system, proposed development, which can include private docks, must be consistent with the local plan.

4. *Wild and Scenic River Designations*

Wild and Scenic River designation provides another framework for management of private docks. Rivers and their immediate environments selected for their, “outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.” (The Federal Wild and Scenic Rivers Act; P.L. 90-542 as amended; 16 USC. 1271–1287)

Rivers can be designated either by Congress or state legislatures. Many states have developed parallel state legislation to designate and manage wild and scenic rivers (e.g., New Jersey’s Wild and Scenic Rivers Act of 1977; N.J.S.A. 13:8–45 *et seq.*). Within such designated areas, management plans are developed that may be implemented through either state statutes or municipal ordinances. This planning process allows a state or municipality to address issues related to the development of private docks.

5. *Critical Resource Areas*

Many states and municipalities have the authority to define certain areas as critical to the protection of coastal resources. These may be known as aquatic preserves, Areas of Critical Environmental Concern, Areas for Preservation and Restoration, significant wildlife or marine resource habitat, or some similar designation, but all provide a framework for dock management. In some of these areas, scenic resources are a factor

in designation, leading to the potential for construction standards to minimize or avoid visual impacts.

Case Studies of Regional Dock Management Plans—

There are a number of excellent examples of Regional Dock Management Plans. Already referenced have been plans from Blakely Harbor, WA; Lloyd Harbor, NY; and Ashley River, SC. Two regional plans from Connecticut are recommended for review; The Town of Chester Dock Management Study (Roberge and Steadman, 2003) and The Lower Connecticut River Dock Impact Study (Downes, 2004).

The two case studies that follow were selected because they reflect plans developed for areas with similar geographic and environmental aspects, but in which there are differing resources to be protected—based on differing human values ascribed to those resources.

Pleasant Bay, Massachusetts—

Pleasant Bay is an estuary bordering on four towns on Cape Cod. In 1987 the Commonwealth of Massachusetts designated the Bay and some surrounding uplands as an Area of Critical Environmental Concern. This designation precluded state issuance of permits for dock construction until a state-approved Resource Management Plan was in place. Such a plan was submitted for approval in 2000 (Macfarlane *et al.*, 2000). During the development of the resource management plan for the bay, an inventory was taken of existing private piers and the potential for further construction. The planning group developed a matrix designed to predict the impacts from individual docks and piers—as well as cumulative impacts—and applied this to 26 geographic subsections within the bay. Each subsection was rated for susceptibility to impacts. This resulted in a moratorium on dock construction in some areas and the establishment of standards for design and construction in others. The moratoria and standards are implemented in a similar manner by each of the four bordering towns through parallel local ordinances. Macfarlane *et al.* (2000) note that, “By eliminating the lot-by-lot procedures, we have also eliminated a more subjective approach to the permitting procedure.”

Simplified Version of Matrix used in Pleasant Bay Resource Management Plan	
Categories Considered	Values Applied
The nature of water body	Semi-enclosed or open water body. This relates to the flushing capacity of the water body.
Dock ratio	The number of lots with docks compared to the number that do not, but where a dock could be constructed.
Shellfish habitat	Historical, present, and proposed propagation areas. Yes = evidence of being able to support shellfish, Slight = supports shellfish but not in abundance, No = no evidence for supporting or being able to support shellfish
Width of Fringing marsh	Width of Fringing marsh.

Abundance of eelgrass	Heavy = covered with eelgrass with a few bare spots, Medium = eelgrass interspersed with bare sediment of equal proportions, Light = no eelgrass or few sporadic individual plants).
Water depth within 150 feet of shore	Deep = greater than 4' at mean low water, Medium = 3–4' at MLW, Shallow = less than 3'.
Moorings within 150 feet	Heavy = more than 3 moorings or mapped public mooring field, Light = 0–3 moorings, None = no moorings in area.
Navigation channel within 500 feet	Yes or No.
Recreational use	Heavy = heavy use usually from boating activity, Medium = some boating or other water use, Light = very little boating or other water use).

Table 1. A simplified form of the matrix used to rank subsections of Pleasant Bay. From the Pleasant Bay Resource Management Alliance (1999).

Numerical values were assigned to each evaluation and then added together to produce an overall value for each segment of the bay. Appendix 1 provides a list of the standards docks must meet for approval. For further details see www.pleasantbay.org/dockguidelines.pdf.

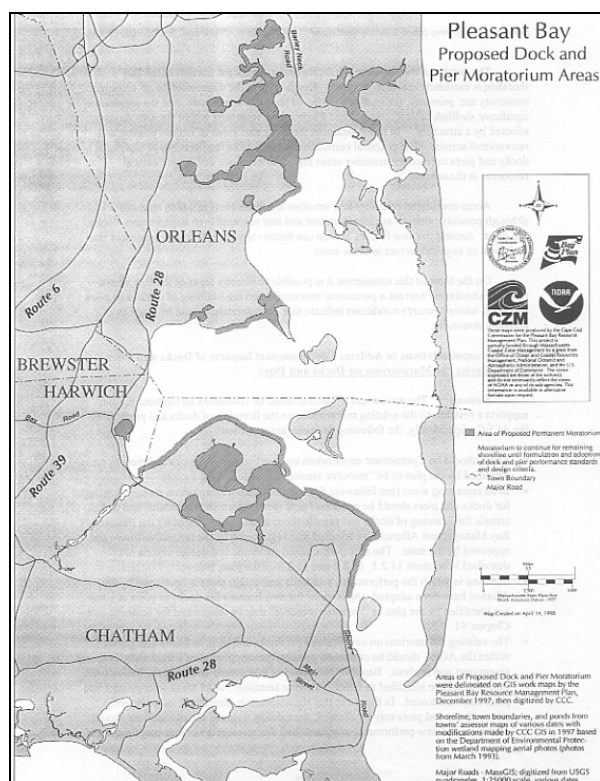


Figure 1. Pleasant Bay, MA Resource Management Plan. Dark areas are those where new dock construction is prohibited.

The most sensitive areas were identified and made subject to town ordinances that regulated whether docks could be built and, if so, their dimensions and/or types of structure. The dark areas in Figure 1 represent the portions of the Bay where new construction is prohibited.

Marion, Massachusetts—

The Town of Marion, Massachusetts sought to develop a harbor-wide dock management plan. Members of the planning group developed a series of criteria and assigned numerical values to each (Costa and Rockwell, 2004). As is evident, the criteria were heavily weighted to protect shellfish resource areas.

Marion (MA) Resource Evaluation Matrix	
Resource	Scoring Range (in points)
Eel grass area (as defined by the MA DEP or Marion Shellfish Department)	4.0 if present
Softshell clam resource area (rated poor, fair, good, excellent)	.0.9 Poor 1.8 Fair 2.7 Good 3.6 Excellent
Hardshell clam (quahog) resource area (rated poor, fair, good, excellent)	.0.9 Poor 1.8 Fair 2.7 Good 3.6 Excellent
Oyster resource area (rated poor, fair, good, excellent)	.0.8 Poor 1.6 Fair 2.4 Good 3.3 Excellent
Bay scallop resource area	3.1 if present
Razor clam resource area	2.7 if present
Natural Heritage Endangered Species Program Diamond-back Terrapin habitat	1.6 points if present

Table 2. Marion (MA) resource evaluation matrix (Costa and Rockwell, 2004).

The specific numerical values within the scoring range evolved out of a discussion among the members of the planning committee based on the perceived value of which resources were important to the community and which were most important. The scoring was subjective based on best professional judgment. (Staff scientists and planners from the Buzzards Bay National Estuary Program provided technical assistance to this effort.)

Swimming Beaches (public and semi-public), though not scored, were a factor in placing final exclusion zones. A 50-foot setback was proposed from existing docks.

Based on these criteria, several areas were proposed where docks and piers will be prohibited as part of a shoreline and watershed Zoning Overlay District. For further details on the proposal and its status see www.buzzardsbay.org/dockpiermodel.htm.



Figure 2. Draft map of Marion, Massachusetts dock management area. Docks would be prohibited in dark colored areas (Costa and Rockwell, 2004).

The examples above show that planning processes may differ in their priorities and means of implementation. However, in each case an evaluation was made of a discrete geographic area for the appropriateness of private dock development.

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Appendix 1: Standards for docks in Pleasant Bay (MA) Area of Critical Environmental Concern

Parameter	Design Criteria
Maximum length (pier and float):	80 feet from MHW
Required water depth at MLW	2.5 feet minimum
Width	4 feet maximum
Height	4 feet maximum above MHW
Pile size and spacing	Not more than 4 x 4 posts spaced a minimum of 8 feet apart. Stub pipes are not appropriate below MHW
Plank spacing	Minimum of 1' spacing between planks or alternate decking that achieves same light penetration
Seasonal requirement	Seasonal use only (6 months/year; off-season storage plan to be approved.
Float size	300 square foot maximum
Float configuration	"T" preferred
Pier location and setbacks	No less than 50 foot setback from property boundary. Shared use piers may be located 50 feet from outermost property boundary of the contiguous waterfront properties. No closer than 50 feet from existing eelgrass bed. No closer than 50 feet from existing boating channels or mooring areas. Adequate distance (e.g., 250 feet) from nearest pier or boat ramp.
Pier orientation	North/South preferred, or perpendicular to coastal bank.
Materials and installation	Non-leaching materials preferred. Installation to use floating barge or boat. Design and installation plan must be approved by a licensed engineer.